Repeated Exposure to Smoking Warning Labels: The Effect on Smoking Related Cognitions

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I declare that this report is my own original work and that contributions of others have been duly acknowledged.

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Ms. Michelle Dicker Date

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To my Masters cohort, all the best. We survived.

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Abstract

Cigarette smoking remains one of the most significant preventable causes of mortality and disease in Australia. The most prominent and most visible approach to stop the uptake of smoking and reduce smoking rates are warning labels on cigarette packs. The purpose of this study was to determine the effect of anti-smoking warning labels on smoking related cognitions derived from the Extended Parallel Processing Model (EPPM), in particular fear, severity, susceptibility, self-efficacy and intentions. A total of 62 participants (25 smokers and 37 never-smokers) aged between 19 years and 70 years (M = 34.03, SD = 13.87) were recruited for this study. Participants were required to monitor their intake of cigarettes in real time, and to report when they were exposed to smoking warning labels, through entering information into an Ecological Momentary Assessment (EMA) device. The present study has provided support for the effective use of EMA devices to determine the effects of encountering smoking warning labels on smoking cognitions, with exposure to smoking warning labels indicating an increase on a smoker's self-efficacy in belief around ability to not smoke cigarettes. It is suggested that a focus within future anti-smoking campaigns, should incorporate more meaningful messages around an individual's self-efficacy, as this may further assist in smokers achieving smoking cessation.

Introduction

Cigarette smoking and the substantial harm caused by ongoing tobacco use, kills approximately six million people per year, costing the global economy more than half a trillion dollars per annum (WHO, 2013). Cigarette smoking remains one of the most significant preventable causes of mortality and disease in Australia, contributing to illnesses such as cancer, heart disease and strokes, and killing over 15,000 people annually (CCA, 2006). Smoking also heightens the risk of contracting diseases such as chronic obstructive pulmonary disease, coronary heart disease, and cerebrovascular disease (Burns, 2003). Research has indicated that smokers experience a high rate of relapse when attempting to quit smoking, with the majority of smokers only achieving abstinence for prolonged periods of time after multiple smoking cessation attempts (Zwar et al., 2009) Hurley and Matthews (2007) suggest that the health and economic benefits of quitting are substantial, and can include positive outcomes in the areas of avoidance of diseases and death, quality of life, and reduced health care costs.

Despite these substantial downsides to smoking, tobacco companies are heavily involved in marketing strategies, including tobacco advertising, promotion, and sponsorship deals, and will spend upwards of billions of dollars to facilitate these strategies (WHO, 2013). As a counter measure to global tobacco marketing strategies, WHO created the Framework Convention on Tobacco Control (FCTC) in 2003, which includes legislation concerning the protection from exposure to tobacco smoke, regulation of tobacco product disclosures, packaging and labelling of tobacco products, and education, communication, training and public awareness about tobacco products (WHO, 2005). Consumer education and anti-smoking campaigns are continually being developed to promote smoking cessation and prevent smoking uptake, particularly within younger smokers (Mahoney, 2010).

One public health measure that effectively conveys the dangers of smoking cigarettes and assists in fighting the use of tobacco, is the use of graphic warning labels on cigarette packages (Dijkstra & Bos, 2015; Mahoney, 2010). Research suggests that smoking warning labels effect can range in effectiveness, dependent upon location on the package, design of the image, and size of the health warning (Hammond, 2011). Text-based warnings appear to be less effective, whereas graphic images have the ability to elicit strong emotional reactions which increases their level of effectiveness in increasing health knowledge, perceptions of risk, and assist in smoking cessation attempts (Hammond, 2011). Current warning labels tend to display graphic images of disease or illness, which portrays the health risk and aims to elicit feelings of fear and vulnerability (Dijkstra & Bos, 2015). The majority of anti-smoking campaigns usually centre around the use of fear-based strategies, or fear appeals, that is, they try to highlight negative consequences of smoking and instigate feelings of fear and vulnerability in the message recipients (Mahoney, 2010). Unfortunately, the utilisation of fear-based programs and education has had limited success, and despite the media portrayal of anti-smoking messages, many people continue to choose to smoke cigarettes (Mahoney, 2010).

1.1 Fear Appeals and Cigarette Health Warning Labels

Fear appeals are persuasive messages, designed to elicit fear in people, if they are resistant to modify their behaviour in relation to an intended message (Witte, 1992). Fear appeals have the potential to motivate adaptive behaviours, such as message acceptance, and alternatively, also have the potential to create maladaptive behaviours, such as defensive avoidance (Witte & Allen, 2000). Research suggests that the strength of fear appeals can have a significant impact on perceived severity and susceptibility, with strong fear appeals produced higher levels, as compared to weak fear appeals (Witte & Allen, 2000). Research

suggests that fear appeal messages can be made more effective through increasing reference to the severity of the threat, susceptibility to the threat, in addition to connecting to an individual's sense of self-efficacy to achieve the desired behaviour (Witte & Allen, 2000).

One of the most recent theories of fear appeals is the Extended Parallel Process Model (EPPM; (Witte & Allen, 2000)). The EPPM has incorporated and continued to advance previous fear appeal theoretical frameworks, including Leventhal's danger control/fear control model, and elements of Roger's original Protection Motivation Theory (Leventhal, 1970; Rogers, 1975; Witte, 1992). The EPPM is illustrated in Figure 1 (below).

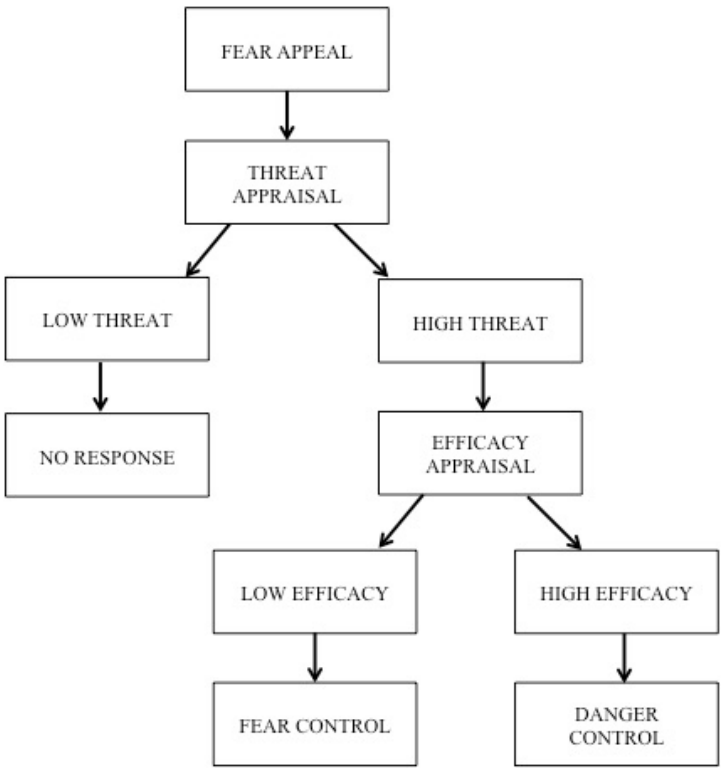


Figure 1: The Extended Parallel Process Model (Witte, 1992).

The EPPM has within its paradigm, four key variables that are related to the parallel processes of appraising the health threat arising from a problem and the appraisal of the efficacy of a potential response to this threat (Witte, 1992). When fear is elicited in response

to a fear appeal, a threat appraisal occurs regarding the individual's personal perceived susceptibility to the threat, in addition to evaluating the severity of the threat itself. This model suggests that when perceived threat is considered to be minimal, the effect of fear appeals is also minimal due to the individual not being able to identify any relevant health risks that are relevant to them personally (Witte & Allen, 2000). Where the threat is evaluated to be high, a further efficacy appraisal occurs due to the elicited fear response (Witte, 1992). In the instance where the perceived threat is high and appraisal of perceived efficacy is low, an initiation of fear control processes commence, and the individual is responding the elicited fear, as opposed to the threat. Alternatively, in the instance where the perceived threat is high and appraisal of perceived efficacy is also high, an initiation of danger control processes comment, and the individual begins to respond to the threat, as opposed to the elicited fear. Individuals have a tendency to operate with what are considered intended effects when the perceived efficacy is more powerful than the perceived threat, and as a result, the resultant behaviours can be preventative and the individual has a higher chance to form positive attitudes and behaviours (Witte & Allen, 2000).

1.2 Smoking Warning Messages

Anti-smoking campaigns are mainly promoted through mass media, including television, billboards, and the recent inclusion of smoking warning labels on tobacco packaging, to inform the general population about the risks associated with smoking and also the risks associated with contracting a tobacco-related disease (Wakefield et al., 2008). The effects of tobacco control appeared to have an immediate impact on the prevalence of cigarette smoking, however if this level of adequate exposure was not retained, smokers tended to return to a baseline rate of smoking (Wakefield et al., 2008).

Anti-smoking messages in Western countries have been predominantly directed at the population of young people, with an approach to provide information about preventative measures to ensure commencement of smoking does not occur, and also fear campaigns where the target is to educate the public on the dangers of smoking (Mahoney, 2010). Data indicates that anti-smoking health messages often are ignored (Mahoney, 2010). Fear based messages are also proving to be non-effective, due to smokers minimising the level of risk and ignoring the threatening messages (Mahoney, 2010).

Existing evidence suggests that reactions to smoking warning labels can be a factor in smoking cessation attempts, with a reduction in smoking being associated with exposure to smoking warning labels and quit-related cognitive responses (Borland, Yong, et al., 2009). However, warning salience and avoidant behaviours were also influential in smoking cessation attempts, although it is likely mediated through cognitive responses and forgoing cigarettes (Borland, Yong, et al., 2009). In addition to people responding defensively to fear based, or threatening, health information, this can be exacerbated when the message challenges the individual's goals that are relevant to their self (Kessels, Ruiter, & Jansma, 2010). Individuals exposed to threatening health information, and who thereby experience dissonance due to the associated threat to their self-image, are driven to reduce the threat by either changing the cognitive appraisal of threat and perceived risk, or by refuting the fear based information resulting in message derogation (Brown & Locker, 2009; Keller, 1999; Liberman & Chaiken, 1992). Kessels et al. (2010) explored the defensive reactions of smokers and non-smokers exposed to fear-based health information (high- and low-threat), through examining attention processes. The research suggested that for threatening health messages that are perceived as self-relevant, more efficient attention disengagement occurs (Kessels et al., 2010).

1.3 Repeated Exposure to Cigarette Health Warning Labels

Research into graphic fear appeals generally explore the effect of a single exposure on smokers, which is not reflective of the typical circumstances that a smoker will experience as they will be confronted with the smoking warning labels multiple times per day via the cigarette packaging (Dijkstra & Bos, 2015). Repeated exposure to graphic fear appeals may result in alternate responses when compared to a single exposure, such as a diminished fear response or habituation to the graphic images (Foa & Kozak, 1986; McCaul, Mullens, Romanek, Erickson, & Gatheridge, 2007). Alternatively, repeated exposure to graphic smoking warning labels may assist in smoking cessation attempts through continual fearful thoughts, which could potentially increase the effect of the graphic fear appeals (Dijkstra & Brosschot, 2003; McCaul et al., 2007). Research into repeated exposure to graphic fear appeals is currently limited, and further investigation can assist with exploring the potential array of emotional reactions towards such appeals.

1.4 Aims and Hypotheses

This study aims to investigate the effect of repeated exposure to smoking warning labels on smoking related cognitions, including: fear, severity, susceptibility, self-efficacy and intentions. It is hypothesised that:

(1) In comparison to never-smokers, those participants who regularly smoke, will report more encounters with smoking warning labels (assessed both in real-time via Ecological Momentary Assessment [EMA] and retrospectively at the end of every day)

(2) In comparison to never-smokers, those participants who regularly smoke (and thus are exposed to more smoking warning messages), will report the following

smoking cognitions over the course of the study intervals (baseline visit (BSL), follow-up 1 (FU1), follow-up 2 (FU2), and follow-up 3 (FU3)):

(a) increased levels of fear associated with contracting a smoking related disease

(b) increased perception of severity associated with contracting a smoking related disease

(c) higher perceived risk of susceptibility to illness, disability or death

In order to examine whether the hypothesised increases in fear, severity, and risk perception are likely to result in adaptive changes in smoking behaviour, it is also hypothesised that:

(3) Repeated exposure to smoking warning labels leads to higher levels of self-efficacy in belief around ability to not smoke cigarettes in both regular smokers and never-smokers

(4) Repeated exposure to smoking warning labels leads to higher levels of intention to not smoke cigarettes in the future in both regular smokers and never-smokers.

Method

2.1 Overview

The purpose of this study was to determine the effect of anti-smoking warning labels on smoking related cognitions derived from the EPPM, in particular fear, severity, susceptibility, self-efficacy and intentions. Participants were allocated into two categories: smokers and never-smokers, dependent on their eligibility criteria. During their involvement in the study, participants were required to carry an Ecological Momentary Assessment device during waking hours, and also responded to a series of questionnaires.

2.2 Participants

A total of 62 participants (25 smokers and 37 never-smokers) aged between 19 years and 70 years (M = 34.03, SD = 13.87) were recruited from the greater Launceston and Hobart regions through targeted advertising on Facebook (Frandsen, Walters, & Ferguson, 2013), flyers posted around the University of Tasmania campus and surrounding districts, and through first year University of Tasmania psychology units for course credit. There were no other demographic exclusion requirements. To be eligible for participation, it was a requirement that individuals were ≥18 years of age, and fell into one of two categories: current smokers, or never-smokers. . The smoking sample eligibility requirements dictated that the participant be a current cigarette smokers who were required to have smoked at least 100 cigarettes in their lifetime, and to smoke an average of ≥10 cigarettes per day (CPD). In addition, it was a requirement that current smokers were not to have been enrolled in a smoking cessation trial, either at the time of the study or in the preceding three months. To ensure the study did not preclude a smoking cessation attempt, current smokers were also required not to be planning to quit smoking in the following three months after the conclusion of the study. The never-smokers eligibility requirements dictated that the participant meet

two selection criteria in relation to their current and previous smoking behaviour: smoking fewer than 100 cigarettes in their entire life, and report having never smoked regularly. All participants received either psychology research participation course credit, or $40 reimbursement for participation at the completion of follow-up visit three (3). Participants were able to withdraw at any time without penalty. Ethical approval for the study was provided by the Human Research Ethics Committee (Tasmania) Network (reference number: H0013138; see Appendix G).

2.3 Design

This study employed a 2 x 4 mixed design. The between-groups factor was smoking status (smokers, never-smokers) and the within-groups factor was time (baseline, follow-up 1, follow-up 2, follow-up 3) (see Figure 2). The dependent variables were smoking related cognitions: fear, severity, susceptibility, self-efficacy and intentions.

2.4 Materials

A customised Ecological Momentary Assessment (EMA) program was loaded for participant use onto LG Optimus One P500 smartphones (HBART, 2013). All other functionality of the phone was disabled. Participants were also required to complete online questionnaires at each of study visits, which will be furthered outlined below.

2.5 Procedure

Eligible participants were invited to attend a University of Tasmania campus. Informed consent was obtained prior to testing (see Appendix C and Appendix D for participant information sheet and consent form). Data was collected between May 2013 and September 2013, as part of a larger ongoing study. . Participants were required to monitor

their intake of cigarettes in real time, and to report when they were exposed to smoking warning labels, through entering information into an Ecological Momentary Assessment (EMA) device. Additionally, participants were also required to respond to random prompts in smoke-free periods approximately three times per day.

At a baseline enrolment session (BSL), participants completed a brief questionnaire (see Appendix E and Appendix F for baseline questionnaire for smokers and never-smokers respectively). Participants' smoking status was verified using two expired air CO samples on a Micro+Smokerlyzer CO monitor. This measurement assists in approximately quantifying recent cigarette intake through measuring an individuals' parts per million (ppm) CO levels to (values lower than 10ppm typically indicate short-term abstinence from smoking). All participants were supplied with a smartphone, which was set up to exclusively run a custom-made EMA program. During the baseline session, participants received training on how to identify anti-smoking messages and how to use the EMA device to record data. Participants were instructed to observe and log every warning message in order to examine the effects of repeated exposure to smoking warning labels. Participants carried the EMA device for an average of 18 consecutive days.

During the study, participants were required to attend four study visits consisting of a baseline enrolment session (outlined above) and three additional follow-up visits, taking approximately ten (10) minutes. During the follow-up visits (scheduled for days three, ten and seventeen of the study), participants completed a short survey.

2.5.1 Baseline Questionnaire (BSL)

Participants were asked to complete an electronically administered questionnaire to gather basic background information. The baseline questionnaire was completed through LimeSurvey (Schmitz, 2012) and included basic demographic information, past and present

using the Fagerström Test for Nicotine Dependence (FTND; Heatherton, Kozlowski, Frecker, and Fagerström (1991)), Time to First Cigarette (TTFC; Baker et al. (2007)), and attitudes about smoking. The scales relating to measuring fear, severity, susceptibility, self-efficacy, and intentions are all psychometrically validated.

2.5.1.1 Fear

There were four (4) items relating to levels of fear associated with contracting a smoking related disease in the BSL and each of the FUQs. The four items (anxious, afraid, scared, worried) were all rated on a 6-point Likert scale between 1 (e.g., 'not at all anxious') to 6 (e.g.,'anxious'). The possible range of scores was 4-24, with higher scores reflecting elevated levels of emotion. The four (4) fear items were based on the circumplex model of affect (Russell, 1980) and have been validated in previous EMA smoking research (Shiffman, Ferguson, Gwaltney, Balabanis, & Shadel, 2006).

2.5.1.2 Severity

There were three (3) items relating to the perception of severity associated with contracting a smoking related disease in the BSL. Each item (e.g., 'developing a smoking related disease would put my financial security at risk') was rated on a 6-point Likert scale between 1 ('strongly disagree') to 6 ('strongly agree'). The possible range of scores was 3-18, with higher scores reflecting stronger levels of agreement with the statements. The three (3) severity items were based on items previously researched by Klein, Harris, Ferrer, and Zajac (2011).

2.5.1.3 Susceptibility

There were three (3) items relating to a higher risk of perceived susceptibility to illness, disability, or death, in the BSL. Each item (e.g., 'the chances of me developing a smoking related disease because of smoking are high') was rated on a 6-point Likert scale between 1 ('strongly disagree') to 6 ('strongly agree'). The possible range of scores was 3-18, with higher scores reflecting stronger levels of agreement with the statements. The three (3) susceptibility items were based on items previously researched by Klein et al. (2011).

2.5.1.4 Self Efficacy

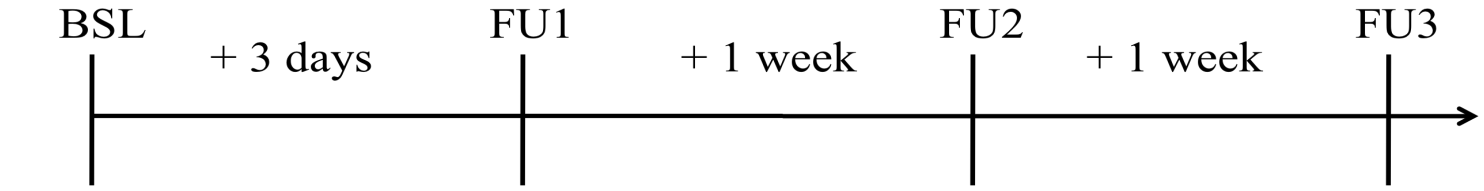
There were four (4) items relating to lower levels of self-efficacy around ability to not smoke cigarettes in the BSL. Each item (e.g., 'I am confident that I will not smoke if I don't want to') was rated on a 6-point Likert scale between 1 ('strongly disagree') to 6 ('strongly agree'). The possible range of scores was 4-24, with higher scores reflecting stronger levels of agreement with the statements. The four (4) self-efficacy statements were based on items previously researched by (Armitage, Harris, Hepton, & Napper, 2008).

2.5.1.5 Intentions

There were three (3) items relating lower levels of intention to not smoke cigarettes in the future in the BSL. Each item (e.g., 'I will try not to smoke in the future') was rated on a 6-point Likert scale between 1 ('strongly disagree') to 6 ('strongly agree'). The possible range of scores was 3-18, with higher scores reflecting stronger levels of agreement with the statements. The three (3) intention items were based on items previously researched by (Sherman, Nelson, & Steele, 2000).

2.5.2 Follow-up Questionnaires (FU1-FU3)

Enrolled participants were asked to complete electronically administered questionnaires at initial visit (BSL), 3 days (FU1), 10 days (FU2), and 17 days (FU3) (see Figure 2) to gather additional information about smoking related cognitions. Questions relating to fear, severity, susceptibility, self-efficacy, and intentions that were previously asked in the BSL, were repeated in each follow-up visit and completed as part of the follow-up questionnaires.



Baseline

SMOKERS
- Admin
- Demographics
- Smoking History
- Thoughts About Smoking
  - Self efficacy
  - Intentions
  - Severity
  - Susceptibility
  - Fear
- Income
- Timeline Follow-Back
  - CPD for 2 weeks

NEVER SMOKERS
- Admin
- Demographics
- Smoking History
- Thoughts About Smoking
  - Self efficacy
  - Intentions
  - Severity
  - Susceptibility
  - Fear
- Income
- Timeline Follow-Back
  Abstinence for 2 weeks?

Follow-up 1

SMOKERS
- Admin
- Thoughts About Smoking
  - Self efficacy
  - Intentions
  - Severity
  - Susceptibility
  - Fear
- Timeline Follow-Back
  - Quit smoking?
  - Experience lapse?
  - CPD for 2 weeks

NEVER SMOKERS
- Admin
- Thoughts About Smoking
  - Self efficacy
  - Intentions
  - Severity
  - Susceptibility
  - Fear
- Timeline Follow-Back
  - Smoked since last visit?
  - CPD for 2 weeks

Follow-up 2

SMOKERS
- Admin
- Thoughts About Smoking
  - Self efficacy
  - Intentions
  - Severity
  - Susceptibility
  - Fear
- Timeline Follow-Back
  - Quit smoking?
  - Experience lapse?
  - CPD for 2 weeks

NEVER SMOKERS
- Admin
- Thoughts About Smoking
  - Self efficacy
  - Intentions
  - Severity
  - Susceptibility
  - Fear
- Timeline Follow-Back
  - Smoked since last visit?
  - CPD for 2 weeks

Follow-up 3

SMOKERS
- Admin
- Thoughts About Smoking
  - Self efficacy
  - Intentions
  - Severity
  - Susceptibility
  - Fear
- Timeline Follow-Back
  - Quit smoking?
  - Experience lapse?
  - CPD for 2 weeks

NEVER SMOKERS
- Admin
- Thoughts About Smoking
  - Self efficacy
  - Intentions
  - Severity
  - Susceptibility
  - Fear
- Timeline Follow-Back
  - Smoked since last visit?
  - CPD for 2 weeks

Figure 2: Timeline of study visits by participants.

2.5.3 Analytic Plan

To test hypothesis 1 (that smokers will report more encounters with smoking warning labels than never-smokers), independent samples *t*-tests were used to compare participants' self-reported encounters of smoking warning labels between smokers and never-smokers.

To test hypotheses 2a – 2c, 3, and 4 (that smokers who would be encountering more warning messages would also show increases in smoking-related cognitions over time), a 2 (smoking status) x 4 (time) mixed ANCOVA with mean number of smoking warning labels encountered per day as covariate was used to examine changes over time in participants' self-reported ratings on smoking-related cognitions of fear, severity, susceptibility, self efficacy and intentions.

Significant time, or time by smoking status, or time by smoking warning labels interactions were followed up by a linear regression analysis examining whether the change scores of any of the predictors were predictive of changes in any of the other variables.

All data was analysed using SPSS version X for Windows/Macintosh. All online surveys were completed using LimeSurvey. Alpha levels for all comparisons of statistical significance was set to $\alpha = .05$. Eta-squared was also used as a measure for effect size for ANOVA statistical analyses.

Results

3.1 Data Screening

The assumptions of normality, homogeneity of variance, and sphericity were all considered in the statistical analysis of this study. In testing of normal distributions, all study variables at all measurement points showed significant deviations from normality in the Kolmogorov-Smirnov test. However, visual inspections of the Q-Q plots showed the observed values to be aligning with the expectations under normality assumptions. As it has been argued that the General Linear Model is robust to small deviations from normality (Tabachnick & Fidell, 2003), no transformations were applied in order to be able to compare variables over time.

3.2 Self-Reported Baseline Demographics and Smoking History

Table 1 presents demographics of participants. Of the 25 smokers, approximately half (n = 12; 48.0%) were female. There were significantly more Caucasians recruited (n = 50; 80.6%) compared to other nationalities (n = 12; 19.4%). Almost two thirds of all participants had attended some university level education (n = 42; 67.8%), and approximately one third had never been married (n = 23; 37.1%).

An independent samples t-test was used to compare the average age in years reported by smokers (n = 25) to the average age in years reported by participants in the never-smokers category (n = 37). The t-test was statistically significant, with never-smokers (M = 30.30, SD = 12.92) being about 9.26 years younger 95% CI [-16.10, -2.43], than the smokers (M = 39.56, SD = 13.61), $t(60) = -2.71$, $p = .009$, $d = .70$.

A series of Person's chi-square tests of contingencies (with $\alpha = .05$) were used to evaluate whether age, gender, ethnicity, education level, or marital status were related to participants being a smoker or never-smoker. The chi-square tests for age, gender, ethnicity,

and marital status were all non-significant. The chi-square test for education level was statistically significant, χ^2 (1, N = 62) = 16.08, p = .003, and the association between smoking status and education level was moderate, ϕ = .51, with approximately 25% of the variability in smoking status accounted for by the education level .

Table 2 presents baseline and follow-up scores for smoking related cognitions for the smokers category and never-smokers category, including: level of fear associated with contracting a smoking related disease, perception of severity associated with contracting a smoking related disease, perceived risk of susceptibility to illness, disability, or death, self-efficacy in belief around ability to not smoke cigarettes, and intention to not smoke cigarettes in the future. Higher values indicate an increased level of the related smoking cognition.

Table 1

Self-Reported Demographic Information

		Smokers (*n* = 25)	Never-smokers (*n* = 37)	Total (*n* = 62)
Age[a]		39.56 (13.61)	30.30 (12.92)	34.03 (13.87)
Gender				
	Male	52.0%	51.4%	51.6%
	Female	48.0%	48.6%	48.4%
Cigarettes per day (CPD)		18.28 (4.16)	0.0 (0.0)	---
Ethnicity				
	Caucasian	92.0%	73.0%	80.6%
	Other	8.0%	27.0%	19.4%
Education				
	Year 10 or less	16.0%	5.4%	9.7%
	Year 12	44.0%	8.1%	22.6%
	Some university	16.0%	27.0%	22.6%
	Graduated uni.	16.0%	24.3%	21.0%
	Graduate degree	8.0%	35.1%	24.2%
Marital Status				
	Married	28.0%	32.4%	30.6%
	Widowed	0.0%	2.7%	1.6%
	Divorced	12.0%	2.7%	6.5%
	Separated	8.0%	0.0%	3.2%
	Never married	36.0%	37.8%	37.1%
	Living with partner	8.0%	18.9%	14.5%
	Missing	8.0%	5.4%	6.5%

[a] Values indicate means and standard deviations presented for continuous variables.

Table 2

Baseline and Follow-Up Scores for Smoking-Related Cognitions

		Smokers (*n* = 25)	Never-smokers (*n* = 37)	Total (*n* = 62)
Fear[a]				
	Baseline (BSL)	3.30 (1.46)	3.22 (1.56)	3.26 (1.51)
	Follow-up 1 (FU1)	3.31 (1.30)	3.02 (1.48)	3.14 (1.41)
	Follow-up 2 (FU2)	3.24 (1.69)	3.04 (1.47)	3.12 (1.55)
	Follow-up 3 (FU3)	3.09 (1.79)	3.19 (1.49)	3.15 (1.61)
Severity[a]				
	Baseline (BSL)	4.31 (1.17)	5.29 (0.73)	4.89 (1.04)
	Follow-up 1 (FU1)	4.27 (1.26)	5.30 (0.84)	4.88 (1.14)
	Follow-up 2 (FU2)	4.08 (1.38)	5.15 (0.86)	4.72 (1.21)
	Follow-up 3 (FU3)	4.40 (1.34)	5.08 (1.13)	4.81 (1.25)
Susceptibility[a]				
	Baseline (BSL)	4.16 (0.98)	1.91 (1.34)	2.82 (1.64)
	Follow-up 1 (FU1)	3.88 (1.17)	2.23 (1.49)	2.89 (1.59)
	Follow-up 2 (FU2)	3.75 (1.25)	2.34 (1.53)	2.91 (1.57)
	Follow-up 3 (FU3)	3.71 (1.33)	1.90 (1.43)	2.63 (1.65)
Self- efficacy[a]				
	Baseline (BSL)	3.11 (1.08)	5.79 (0.45)	4.71 (1.53)
	Follow-up 1 (FU1)	3.26 (1.21)	5.82 (0.42)	4.79 (1.51)
	Follow-up 2 (FU2)	3.36 (1.15)	5.78 (0.49)	4.81 (1.45)
	Follow-up 3 (FU3)	3.42 (1.20)	5.65 (0.94)	4.75 (1.52)
Intentions[a]				
	Baseline (BSL)	3.36 (1.21)	5.81 (0.62)	4.82 (1.51)
	Follow-up 1 (FU1)	3.25 (1.33)	5.79 (0.52)	4.77 (1.56)
	Follow-up 2 (FU2)	3.59 (1.44)	5.91 (0.28)	4.97 (1.48)
	Follow-up 3 (FU3)	3.76 (1.55)	5.58 (0.96)	4.84 (1.52)

[a] Values indicate means and standard deviations presented for continuous variables.

3.3 Smoking, Days of EMA Usage and Encounters with Smoking Warning Labels

Table 3 presents self-reported information from the participants regarding cigarettes smoked per day, days of EMA usage and daily encounters with smoking warning labels.

An independent samples *t*-test was used to compare the average number of days the EMA device was used by smokers ($n = 25$) to the average number of days the EMA device was used by never-smokers ($n = 37$). The *t*-test was not significant, indicating there was no significant difference in the number of days used between the two categories.

A further independent samples *t*-test was used to compare the number of smoking warning labels logged in real time by smokers ($n = 25$) to the number of smoking warning labels logged in real time by the never-smokers ($n = 37$.) The *t*-test was statistically significant, with the never-smokers ($M = 0.31$, $SD = 0.36$) reporting an average 0.89 fewer encounters with smoking warning labels, 95% CI [-1.37, -0.41], than the smokers ($M = 1.20$, $SD = 1.39$), $t(60) = -3.73$, $p < .001$.

An independent samples *t*-test was used to compare the number of smoking warning labels logged in real time and retrospective time (reported in the evening report) by the smokers ($n = 25$) to the number of smoking warning labels logged in real time and retrospective time (reported in the evening report) by the smokers ($n = 37$.) The *t*-test was statistically significant, with the never-smokers ($M = 0.47$, $SD = 0.68$) reporting an average 1.79 fewer encounters with smoking warning labels, 95% CI [-2.58, -1.01], than the smokers ($M = 2.27$, $SD = 2.26$), $t(60) = -4.56$, $p < .001$.

Table 3

Number of Cigarettes Per Day, Days of EMA Device Use, and Smoking Warning Labels Encountered

	Smokers (n = 25)	Never-smokers (n = 37)	Total (n = 62)
Number of days EMA device used	20.28_a (2.53)	20.14_a (2.89)	20.19 (2.73)
Cigarettes logged per day (CPD)	11.29 (2.98)	0.0 (0.0)	---
Warnings logged in real time per day	1.20_a (1.39)	0.31_b (0.35)	0.67 (1.01)
Sum of all warnings logged in real time	23.12_a (25.18)	6.19_b (7.43)	13.02 (18.77)
Warnings logged per day (real-time and evening report)	2.26_a (2.25)	0.47_b (0.68)	1.19 (1.75)
Sum of all warnings logged per day (real-time and evening report)	44.44_a (43.66)	9.51_b (14.07)	23.60 (34.13)

Note. Variables with different subscripts differ at $p < .05$ according to independent samples t-tests.

3.4. Effects of Time, Smoking Status and Smoking Warning Labels on Fear

A repeated measures ANCOVA was conducted to test whether there was a significant effect of time on fear levels associated with contracting a smoking related disease (within-person factor), and whether this effect differed between smokers and never-smokers or by the number of smoking warning labels encountered daily (between-person factors). Figure 2 shows stable levels of fear for both smokers and never-smokers across time.

The ANCOVA results show there was no significant effect of time on fear (F (2.54, 149.67) = .06, p = .97, partial η^2 = .001, following a Greenhouse-Geisser correction), indicating that there were no significant overall changes in fear associated with contracting a smoking related disease over time. There was no significant interaction between time and smoking status (F (2.54, 149.67) = .43, p = .70, partial η^2 = .007, following a Greenhouse-Geisser correction), indicating that there were no differential changes for smokers versus never-smokers irrespective of time. There was also no significant interaction between time and smoking warning labels encountered, (F (2.54, 149.67) = .64, p = .56, partial η^2 = .001, following a Greenhouse-Geisser correction), indicating that there were no differential changes for smokers versus never-smokers irrespective of time.

Regarding between-subjects effects, there was no significant effect of smoking status on fear, (F (1,59) = .54, p = .41, partial η^2 = .009), indicating that there were no significant difference in fear associated with contracting a smoking related disease irrespective of smoking status. There was also no significant effect of smoking warning labels encountered on fear, (F (1,59) = .570, p = .41, partial η^2 = .012), indicating that there were no significant difference in fear associated with contracting a smoking related disease irrespective of the number of smoking warning labels encountered.

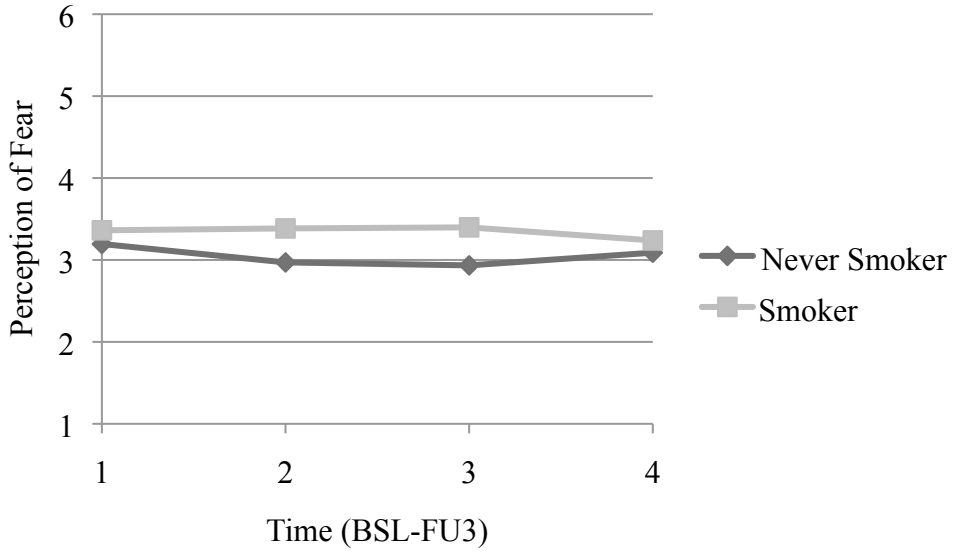


Figure 3: Interaction of time and smoking status on level of fear associated with contracting a smoking related disease.

3.5. Effects of Time, Smoking Status and Smoking Warning Labels on Severity

A repeated measures ANCOVA was conducted to test whether there was a significant effect of time on perceived severity associated with contracting a smoking related disease (within-person factor), and whether this effect differed between smokers and never-smokers or by the number of smoking warning labels encountered daily (between-person factors). Figure 3 shows that severity decreased in never-smokers, and slightly increased for smokers.

The ANCOVA results show that there was no significant effect of time on perceived severity (F (2.30, 135.55) = 1.09, p = .35, partial η^2 = .018, following a Greenhouse-Geisser correction), indicating that there were no significant overall changes in severity associated with contracting a smoking related disease over time. There was no significant interaction between time and smoking status (F (2.30, 135.55) = .72, p = .51, partial η^2 = .012, following a Greenhouse-Geisser correction), indicating that there were no differential changes for changes for smokers versus never-smokers irrespective of time. There was also no significant interaction between time and smoking warning labels encountered, (F (2.30, 135.55) = .1.49,

p = .23, partial η^2 = .025, following a Greenhouse-Geisser correction), indicating that there were no differential changes for changes for smokers versus never-smokers irrespective of time.

Regarding between-subjects effects, there was a significant effect of smoking status on severity, (F (1,59) = 13.88, p < .001, partial η^2 = 0.19 (explaining 19% of the variance in severity)), indicating that there were significant difference in perceived severity associated with contracting a smoking related disease that was associated with smoking status. However, there was no significant effect of smoking warning labels encountered on perceived severity (F (1,59) = .68 p = .41, partial η^2 = .011), indicating that there were no significant difference in perceived severity associated with contracting a smoking related disease irrespective of the number of smoking warning labels encountered.

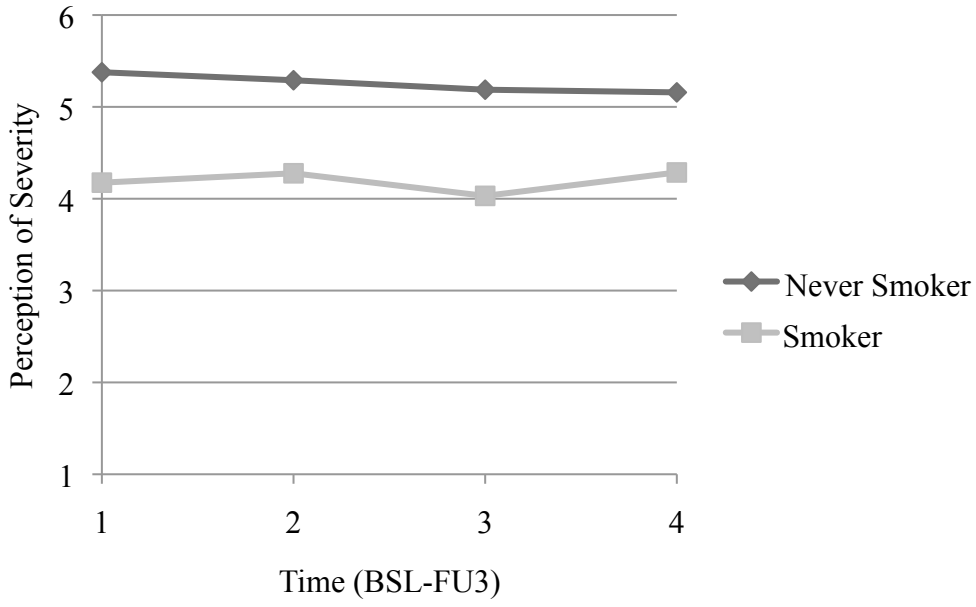


Figure 4: Interaction of time and smoking status on perception of severity associated with contracting a smoking related disease.

3.6. Effects of Time, Smoking Status and Smoking Warning Labels on Susceptibility

A repeated measures ANCOVA was conducted to test whether there was a significant effect of time on perceived risk of susceptibility to illness, disability, or death (within-person factor), and whether this effect differed between smokers and never-smokers or by the number of smoking warning labels encountered daily (between-person factors). Figure 4 shows that susceptibility decreased in smokers, but remained similar for never-smokers after a temporal increase.

The ANCOVA results show that there was no significant effect of time on perceived risk of susceptibility (F (2.77, 163.18) = 1.09, p = .35, partial η^2 = .018, following a Greenhouse-Geisser correction), indicating that there were no significant overall changes in perceived risk of susceptibility to illness, disability, or death over time. However, there was a significant interaction between time and smoking status (F (2.77, 163.18) = 3.26, p = .03, partial η^2 = .052 (explaining 5.2% of the variance in susceptibility), following a Greenhouse-Geisser correction), indicating that the effects of smoking status on perceived risk of susceptibility depend on length of time between BSL and FU3. There was no significant interaction between time and smoking warning labels encountered, (F (2.77, 163.18) = .50, p = .67, , partial η^2 = .008, following a Greenhouse-Geisser correction), indicating that there were no differential changes for changes for smokers versus never-smokers irrespective of time.

Regarding between-subjects effects, there was a significant effect of smoking status on perceived risk of susceptibility, (F (1,59) = 25.89, p < .001, partial η^2 = 0.305 (explaining 30.5% of the variance in susceptibility)), indicating that there were significant difference in perceived risk of susceptibility to illness, disability, or death, that was associated with smoking status. However, there was no significant effect of smoking warning labels

encountered on perceived susceptibility (F (1,59) = .12 p = .73, partial η^2 = .002), indicating that there were no significant difference in perceived risk of susceptibility to illness, disability, or death, irrespective of the number of smoking warning labels encountered.

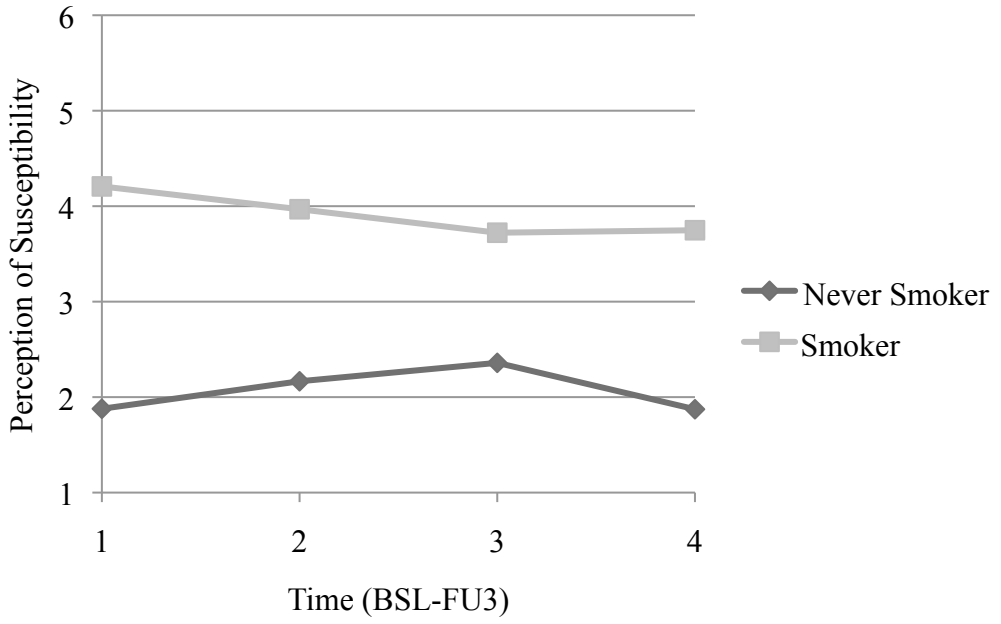


Figure 5: Interaction of time and smoking status on perception of susceptibility to illness, disability, or death.

3.7. Effects of Time, Smoking Status and Smoking Warning Labels on Self-Efficacy

A repeated measures ANCOVA was conducted to test whether there was a significant effect of time on self efficacy beliefs around ability to not smoke cigarettes (within-person factor), and whether this effect differed between smokers and never-smokers or by the number of smoking warning labels encountered daily (between-person factors). Figure 5 shows that self-efficacy beliefs in ability to not smoke cigarettes increased in smokers, and decreased for never-smokers.

There was no significant effect of time on self efficacy beliefs (F (2.28, 134.53) = .80, p = .47, partial η^2 = .013, following a Greenhouse-Geisser correction), indicating that there

were no significant overall changes in self efficacy beliefs around ability to not smoke cigarettes over time. There was no significant interaction between time and smoking status (F (2.28, 134.53) = .65, p = .55, partial η^2 = .011, following a Greenhouse-Geisser correction), indicating that there were no differential changes for smokers versus never-smokers irrespective of time. There was also no significant interaction between time and smoking warning labels encountered, (F (2.28, 134.53) = 1.92, p = .14, partial η^2 = .032, following a Greenhouse-Geisser correction), indicating that there were no differential changes for smokers versus never-smokers irrespective of time.

Regarding between-subjects effects, there was a significant effect of smoking status, (F (1,59) = 140.23, p < .001, partial η^2 = 0.704 (explaining 70.4% of the variance in self-efficacy beliefs)), indicating that there were significant differences in self efficacy beliefs around ability to not smoke cigarettes that were associated with smoking status. There was also a significant effect of smoking warning labels encountered on self efficacy (F (1,59) = 4.32, p = .04, partial η^2 = 0.068 (explaining 6.8% of the variance in self-efficacy beliefs)), indicating that there were significant differences in self efficacy beliefs around ability to not smoke cigarettes that were associated with the number of smoking warning labels encountered.

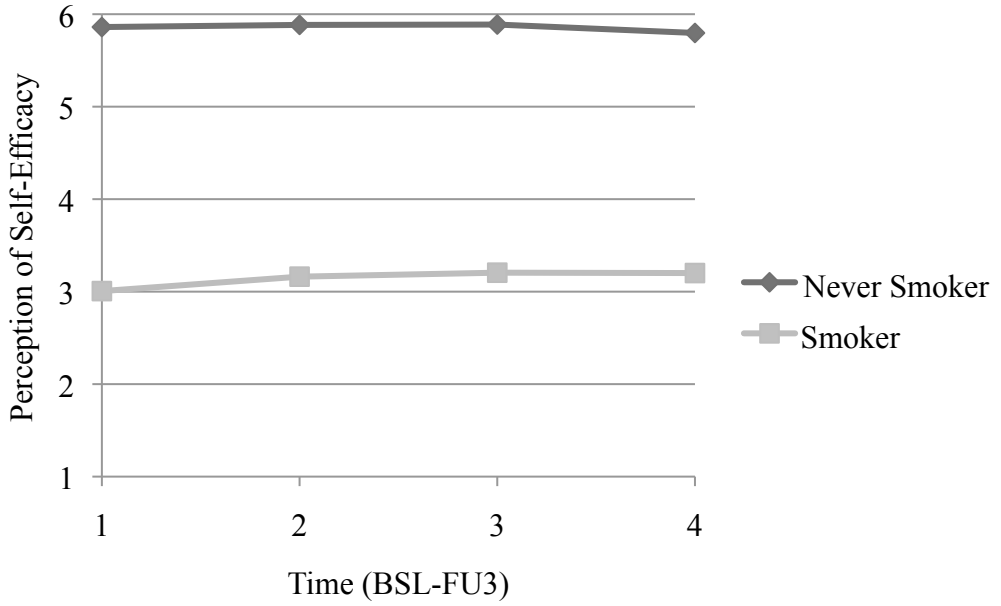


Figure 6: Interaction of time and smoking status on perception of level of self-efficacy in belief around ability to not smoke cigarettes in the future.

3.8. Effects of Time, Smoking Status and Smoking Warning Labels on Intentions

A repeated measures ANCOVA was conducted to test whether there was a significant effect of time on intentions to not smoke cigarettes in the future (within-person factor), and whether this effect differed between smokers and never-smokers or by the number of smoking warning labels encountered daily (between-person factors). Figure 6 shows that smokers' intentions to not smoke cigarettes in the future increased marginally, and that never-smokers' intentions to not smoke cigarettes in the future remained at a high level.

The ANCOVA results show that there was no significant effect of time on intentions (F (2.48, 146.07) = 1.16, p = .32, partial η^2 = .019, following a Greenhouse-Geisser correction), indicating that there were no significant overall changes in intentions to not smoke cigarettes in the future over time. However, there was a significant interaction between time and smoking status (F (2.48, 146.07) = 3.23, p = .03, partial η^2 = .052 (explaining 5.2% of the variance in susceptibility), following a Greenhouse-Geisser

correction), indicating that there were differential changes for smokers versus never-smokers over time. There was no significant interaction between time and smoking warning labels encountered, (F (2.48, 146.07) = .61, p = .58, partial η^2 = .010, following a Greenhouse-Geisser correction), indicating that there were no differential changes for changes for smokers versus never-smokers irrespective of time.

Regarding between-subjects effects, there was a significant effect of smoking status on intention to not smoke cigarettes in the future, (F (1,59) = 89.24, p < .001, partial η^2 = 0.602 (explaining 60.2% of the variance in intentions)), indicating that there were significant differences in intentions to not smoke cigarettes in the future that were associated with smoking status. However, there was no significant effect of smoking warning labels encountered on intentions (F (1,59) = 1.34, p = .25, partial η^2 = .022), indicating that there were no significant differences in intentions to not smoke cigarettes in the future, irrespective of the number of smoking warning labels encountered.

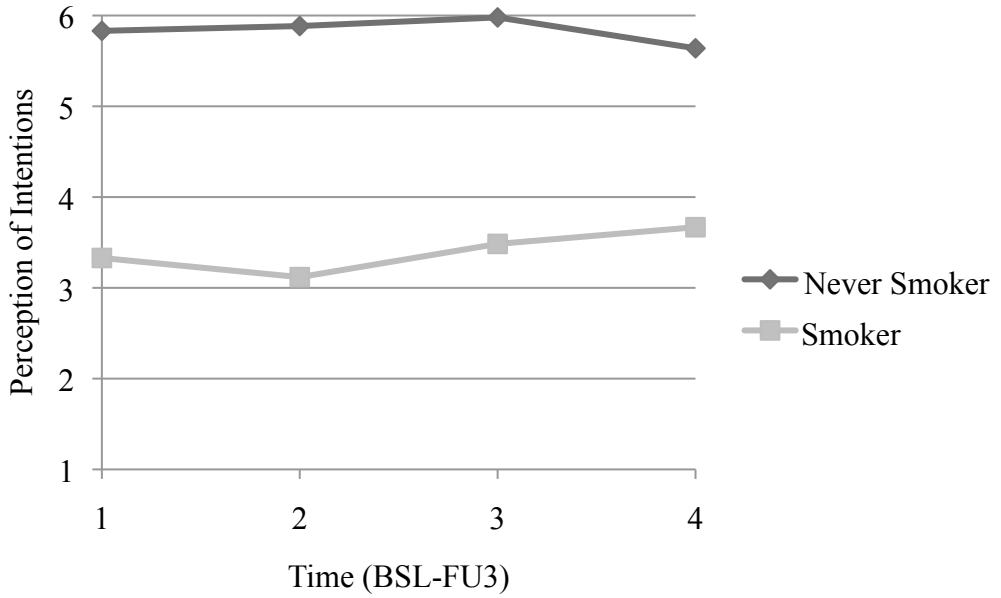


Figure 7: Interaction of time and smoking status on perception of level of intention to not smoke cigarettes in the future.

3.9. Predicting Changes in Intentions from Changes in Risk

Regressions were conducted to examine whether the significant changes in the predictors of smoking intentions were predictive of changes in intentions. The predictors were change scores in those predictors that had significant change over time, and change scores in intentions from the first to last measurement point (BSL to FU3). A linear regression analysis was conducted to examine whether the effects of change in perceived risk were predictive of changes in intention to not smoke cigarettes in the future, and whether this effect was moderated by smoking status.

The regression results show that there was an effect of smoking status on intentions, $\beta = 0.77$, $p = 0.01$, indicating that for smokers, a higher rate of smoking cigarettes results in higher levels of intention to not smoke cigarettes in the future, with never-smokers indicating low intentions to not smoke cigarettes in the future. The regression results also show that there was no effect of smoking status on perceived risk of susceptibility to illness, disability, or death, $\beta = 0.24$, $p = 0.38$, indicating that the perceived risk is comparable between smokers and never-smokers. The results further show that there was no significant interaction between susceptibility and intentions, $\beta = 0.52$, $p = 0.37$.

Discussion

The present study aimed to investigate the effects of repeated exposure to smoking warning labels on cognitions related to smoking (fear, severity, susceptibility, self-efficacy, and intentions to not smoke cigarettes in the future) using an EMA design. It was further examined whether the effects of repeated exposure on these cognitions differed between smokers and never-smokers, and whether the number of warning labels encountered was responsible for possible differences. The selection of variables was based on the Extended Parallel Processing Model (EPPM; (Witte, 1992)), as these factors have been determined as the most important psychosocial predictors of adaptive responses to health messages using fear appeals.

4.1. Encounters With Warning Labels

The present study provided support for hypotheses 1a and 1b, that smokers will report higher number of encounters with smoking warning labels per day in real time, in addition to reporting higher number of encounters with smoking warning labels per day in real time and retrospective time combined, as compared to never-smokers. Results indicated that participants in the never-smoker category reported fewer encounters with smoking warning labels over both conditions. This was expected due to smokers being hypothesised to record an encounter with a smoking warning label every time they smoked a cigarette, due to the exposure of such warnings on the tobacco packaging. However, upon investigation, it appeared that there was substantial under-reporting of smoking warning label encounters by the smokers, both in real time and retrospective reporting. This can be surmised as all participants received training on how to identify smoking warning labels, were given explicit instructions to identify all smoking warning label encountered, in addition to being instructed as to the importance of accurate recording of cigarettes smoked and smoking warning labels

encountered. Despite this, there is no guarantee of certainty that all cigarettes, and also all smoking warning labels have been accurately logged with the EMA device, due to the low number of smoking warning labels encountered by the smokers, who would encounter a smoking warning label each time they retrieved a cigarette. Additionally, this study was unable to control for the amount of exposure to smoking warning labels experienced by participants, prior to their engagement in this study.

4.2 Effects of Encounters With Warning Labels on Smoking-Related Cognitions

Previous research has been limited into repeated exposure to smoking warning labels, or graphic fear appeals, which the majority of research focusing on single encounters with the warning labels (Dijkstra & Bos, 2015). This study extended the previous research, and further investigated real-world reactions of repeated exposure to smoking warning labels repeatedly.

The results of the present study did not provide support for hypothesis 2a, that in comparison to never-smokers, those participants who regularly smoke, and thus are exposed to more smoking warning labels, will report higher levels of fear associated with contracting a smoking related disease. Results indicated that there was no difference in levels of fear associated with contracting a smoking related disease between the initial baseline session and each of the three follow-up sessions. There were also no change in levels of fear between both the smokers and never-smokers. Additionally, there was no change in levels of fear related to the mean number of smoking warning labels encountered per day in real time. There was also no significant difference in fear associated with contracting a smoking related disease irrespective of smoking status, or the number of smoking warning labels encountered. This may be indicative of smokers who repeatedly encounter smoking warning labels

becoming desensitised to the messages, and therefore, are not experiencing a high level of fear due to a reduced fear appraisal.

The results of the present study provided no support for hypothesis 2b, that in comparison to never-smokers, those participants who regularly smoke, and thus are exposed to more smoking warning labels, will report increased perception of severity associated with contracting a smoking related disease. Results indicated that there was no difference in perceived severity associated with contracting a smoking related disease between the initial baseline session and each of the three follow-up sessions. There were also no change in levels of perceived severity between both the smokers and never-smokers. Additionally, there was no change in levels of perceived severity related to the mean number of smoking warning labels encountered per day in real time. There was however, a significant overall difference in severity between smokers and never-smokers, with smokers indicating significantly lower overall perceived severity associated with contracting a smoking related disease, as compared to never-smokers. There was no significant difference in severity associated with contracting a smoking related disease, irrespective of the number of smoking warning labels encountered. Following previous research by (Ditto, Jemmott III, & Darley, 1988), these results may be indicative that participants are identifying the perception of the health threat as high, and could be minimising the severity of the threat.

The results of the present study provided no support for hypothesis 2c, that in comparison to never-smokers, those participants who regularly smoke, and thus are exposed to more smoking warning labels, will report a higher perceived susceptibility to illness, disability, or death. Results indicated that there was no difference in levels of susceptibility between the initial baseline session and each of the three follow-up sessions, however, interestingly, the perceived susceptibility in never-smokers increased slightly over time between the initial baseline session and each of the three follow-up sessions, and the

susceptibility of smokers decreased. At all time points however smokers perceived higher susceptibility than never-smokers. There was also no significant difference in susceptibility, irrespective of the number of smoking warning labels encountered, indicating that the change in susceptibility over time for never-smokers, was due to a factor other than the smoking warning labels. This may be indicative that the participants have an accurate view of their level of susceptibility, as research suggests that people who engage in risky behaviours are able to accurately identify their level of risk appropriately (Renner, Schuz, & Sniehotta, 2008).

The results of the present study no support for hypothesis 3, that repeated exposure to smoking warning labels will lead to higher levels of self-efficacy in belief around ability to not smoke cigarettes, in both smokers and never-smokers. Results indicated that there was no difference in levels of self-efficacy in belief around ability to not smoke cigarettes, between the initial baseline session and each of the three follow-up sessions. There were also no change in levels of self-efficacy between both the smokers and never-smokers. Additionally, there was no change in levels of self-efficacy related to the mean number of smoking warning labels encountered per day in real time. There was however, a significant overall difference in self-efficacy between smokers and never-smokers, with smokers indicating significantly lower overall self-efficacy beliefs in their ability to not smoke, as compared to never-smokers. There was also a significant difference in self-efficacy in belief around ability to not smoke cigarettes, which was associated with the number of smoking warning labels encountered, where more encounters predicted higher levels of self-efficacy.

The results of the present study provided no support for hypothesis 4, that repeated exposure to smoking warning labels will lead to higher levels of intention to not smoke cigarettes in the future, in both smokers and never-smokers. Results indicated that there was no difference in levels of intention between the initial baseline session and each of the three

follow-up sessions. There was a significant differential changes in levels of intention for smokers versus never-smokers over time, with never-smokers indicating significantly higher levels of intent to not smoke cigarettes in the future, as compared to smokers. The smokers indicated a much lower rating in their self-efficacy beliefs, which could possibly be due to smokers encountering more smoking warning labels, although this is only a small effect between smokers and never-smokers. There were also significant differential changes in levels of intention that were associated with smoking status, with smokers' intentions to not smoke cigarettes in the future increasing over time. This is potentially indicative of a question-behaviour effect (discussed below) (Van Kerckhove, Geuens, & Vermeir, 2012).

Overall, the results indicated that repeated encounters of smoking warning labels experienced by smokers and never-smokers have no effects on the levels of fear associated with contracting a smoking related disease, and no effects on an increased perception of severity or susceptibility associated with contracting a smoking related disease. Intentions to not smoke cigarettes in the future, and self-efficacy beliefs around ability to not smoke cigarettes did increase significantly, however, this was only a minimal increase and it may be unlikely that it would translate to effective and positive smoking behaviour changes in the future. Findings from the regression analysis also further indicated that the changes in susceptibility were not related to changes in intentions.

4.3 Question Behaviour Effect

It is possible that the increase in the smokers' intention to not smoke cigarettes in the future could be the result of the so-called "question behaviour effect". The question behaviour effect postulates that through the simple act of answering a question that is related to future behaviour, can potentially activate an intention automatically (Van Kerckhove et al., 2012). This is believed to occur, in part, due to increasing the opportunity to access

information that is related to positive behaviour change, while reducing competing information (Van Kerckhove et al., 2012). This may provide an alternative explanation to the increase in smokers' intention to not smoke cigarettes in the future, as opposed to the intervention of experiencing repeated exposures to smoking warning labels.

4.4 Implications of Present Study and Clinical Utility

This current study is one of the first to examine the effects of repeated exposure to graphic fear appeals, or smoking warning labels, which is a significant advantage over previous research that has been concentrated on investigating the responses to graphic fear appeals limited to a single encounter.

The findings of this current study provides evidence for adapting future smoking warning labels in anti-smoking campaigns, such as utilising a focus on self-efficacy as an adjunct to fear appeal messages. This may assist in the creation of better smoking warning labels that promote smoking cessation, in addition to continuing to increase awareness of the risks. This may have the benefit of increasing the engagement of people intending to quit.

The findings also suggest that repeated encounters appear to have little effect on the evidence-based predictors of smoking cessation attempts (Dijkstra & Bos, 2015), and this is additional evidence that improved content for smoking warning labels is required.

4.5 Limitations of the Present Study and Future Research

While these results should be considered as preliminary findings, a fundamental limitation of the present study is the small sample size of participants, in addition to having an unequal distribution of male and females in each of the smokers and never-smokers categories. The smokers in this study also tended to be older than the never-smokers, and the participants further had differences in their level of education, with a higher percentage of smokers reporting education levels below tertiary level. There also appeared to be significant

under-reporting of smoking warning labels as identified by the smokers, as they were not registering an exposure to a warning label for every cigarette that was smoked.

Future research may benefit from further exploration incorporating a wider range of questionnaire responses to more completely capture the concepts of smoking related cognitions.

4.6. Conclusion

The findings of the current study indicate that smoking status does have an influence on an individual's perception of risk of severity associated with contracting a smoking related disease, perceived risk of susceptibility to illness, disability, or death, self, self-efficacy beliefs around ability to not smoke cigarettes, and intentions to not smoke cigarettes in the future. Interestingly, the smokers reported a lower score in perceived risk of severity, as compared to the never-smokers, indicating that there may be the possibility of some minimisation of symptoms and risk. Smokers also indicated a change over time in perceived risk of susceptibility, where could potentially be attributed to increasing awareness of smoking warning labels and the negative health impacts of smoking. The findings further suggest that encounters with smoking warning labels significantly influenced the level of self-efficacy in belief around ability to not smoke cigarettes in smokers, and this was also influenced by the number of smoking warning labels encountered. While the reported encounters of smoking warning labels was much lower than expected, than as reported by smokers, encounters do appear to increase an individuals belief they are able to control the amount of cigarettes smoked.

In conclusion, the present study has provided support for the effective use of EMA devices to determine the effects of encountering smoking warning labels on smoking cognitions, with exposure to smoking warning labels indicating an increase on a smoker's

self-efficacy in belief around ability to not smoke cigarettes. It is suggested that a focus within future anti-smoking campaigns, should incorporate more meaningful messages around an individual's self-efficacy, as this may further assist in smokers achieving smoking cessation.

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Appendix A – Original Ethics Approval (April 2013)

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University of Tasmania
Private Bag 1
Hobart Tasmania 7001
Telephone + 61 3 6226 7479
Facsimile + 61 3 6226 7148
Email Human.Ethics@utas.edu.au
www.research.utas.edu.au/human_ethics/

HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

UTAS

26 April 2013

Dr Natalie Schuez
C/- UTas School of Medicine

Sent via email

Dear Dr Schuez

REF NO: H0013138
TITLE: Momentary effects of repeated encounters with anti-smoking warnings

Application Form Low Risk (Version January 2013)
Appendix A Recruitment flier (Version January 2013)
Appendix B Proposed Facebook advertisement (Version January 2013)
Appendix C Wording for webpage link (Version January 2013)
(Participant) Appendix D (Version January 2013)
Appendix E (Version January 2013)
Appendix F Survey (Drivers baseline) (Version January 2013)

The Tasmania Health and Medical Human Research Ethics Committee considered and approved the above documentation on **26 April 2013** to be conducted at the following site(s):

University of Tasmania

This approval constitutes ethical clearance by the Health and Medical HREC. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities are required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

All committees operating under the Human Research Ethics Committee (Tasmania) Network are registered and required to comply with the *National Statement on the Ethical Conduct in Human Research* (NHMRC 2007 updated 2009).

Therefore, the Chief Investigator's responsibility is to ensure that:

(1) The individual researcher's protocol complies with the HREC approved protocol.

(2) Modifications to the protocol do not proceed until **approval** is obtained in writing from the HREC.

(3) Section 5.5.3 of the National Statement states:

Researchers have a significant responsibility in monitoring approved research as they are in the best position to observe any adverse events or unexpected outcomes. They should report such events or outcomes promptly to the relevant institution/s and ethical review body/ies and take prompt steps to deal with any unexpected risks.

The appropriate forms for reporting such events in relation to clinical and non-clinical trials and innovations can be located at the website below. All adverse events must be reported regardless of whether or not the event, in your opinion, is a direct effect of the therapeutic goods being tested.
http://www.research.utas.edu.au/human_ethics/medical_forms.htm

(4) All research participants must be provided with the current Patient Information Sheet and Consent Form, unless otherwise approved by the Committee.

(5) The Committee is notified if any investigators are added to, or cease involvement with, the project.

(6) This study has approval for 4 years contingent upon annual review. A *Progress Report* is to be provided on the anniversary date of your approval. Your first report is due 26 April 2014. You will be sent a courtesy reminder closer to this due date.

(7) A *Final Report* and a copy of the published material, either in full or abstract, must be provided at the end of the project.

Should you have any queries please do not hesitate to contact me on (03) 6226 2764.

Yours sincerely

Lauren Black
Ethics Administrator
Office of Research Services
Tel: +61 (03) 6226 2764
Email: lauren.black@utas.edu.au
University of Tasmania
Private Bag 01 Hobart Tas 7001

Appendix B – Ethics Amendment Approval (May 2013)

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HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

UTAS

17 May 2013

Dr N Schuez
C/- Medicine (Discipline)

Sent via email

Dear Dr Schuez

REF NO: **H0013138**
TITLE: **Momentary effects of repeated encounters with anti-smoking warnings**

- Amendment: to recruitment: advertising and extension to the North of the state.

The Tasmanian Health and Medical Human Research Ethics Committee considered and approved the above amendment documentation on 17 May 2013.

All committees operating under the Human Research Ethics Committee (Tasmania) Network are registered and required to comply with the *National Statement on Ethical Conduct in Human Research* (NHMRC 2007).

Should you have any queries please do not hesitate to contact me on (03) 6226 2764.

Yours sincerely

Lauren Black
Ethics Administrator
Office of Research Services
Tel: +61 (03) 6226 2764
Email: lauren.black@utas.edu.au
University of Tasmania
Private Bag 01 Hobart Tas 7001

Appendix C – Participant Information Sheet

Medical Science 1, Level 4, 17 Liverpool Street,
Hobart, Tasmania 7000 Australia
Phone (03) 6226 1093 Fax (03) 6226 2870
Email smokingutas@gmail.com

FACULTY OF HEALTH SCIENCE

PARTICIPANT INFORMATION SHEET

HEALTH AND MEDICAL RESEARCH

STUDY: Momentary effects of repeated encounters with anti-smoking warnings

Invitation

You are invited to participate in a research study to investigate the way that anti-smoking warnings influence smoking behaviour and the onset of smoking. The study is conducted by Dr. Natalie Schüz, Dr. Stuart Ferguson and Dr. Jenn Scott.

1. What is the purpose of this study?

The purpose is to investigate the way that anti-smoking warnings (e.g., on cigarette packages) influence smoking behaviour and the onset of smoking.

2. Why have I been invited to participate in this study?

You are eligible to participate in this study because you are an adult cigarette smoker who is NOT currently interested in quitting smoking, or you are an adult never-smoker.

3. What does this study involve?

If you choose to participate in this study, you will be required to take part in up to four (4) study visits at the University of Tasmania campus; and to monitor your encounters with anti-smoking warnings and the cigarettes you smoke for a total of 17 days (explained below).

Your first visit will take approximately 30-45 minutes to complete, during which you complete a baseline questionnaire and will be given training in the study procedures. During the study, you will be asked to monitor any encounters with anti-smoking warnings and the cigarettes you smoke using a simple to use hand-held computer—similar in appearance to a mobile telephone. You will need to return this device at the end of the study. You will be asked to carry this device with you at all times until the end of the study. Each day you will be asked to indicate, by pressing a button on the device, every time you see an anti-smoking warning or smoke a cigarette. You will also be asked to complete 4-5 assessments at random times throughout your waking day. Each assessment will take approximately 1-2 minutes to complete. Study staff will provide training on how to use the study device and will be able to answer any questions that you might have regarding study participation.

Study visits 2 and 3 will take around 15-20 minutes, during which the data will be downloaded from the monitoring device; and you will provide a sample of your breath, a simple and non-invasive procedure where you exhale into a special device.

At your final visit (Visit 4), you are asked to return the study device and you tell us about your experiences in the study.

Medical Science 1, Level 4, 17 Liverpool Street,
Hobart, Tasmania 7000 Australia
Phone (03) 6226 1093 Fax (03) 6226 2870
Email smokingutas@gmail.com

FACULTY OF HEALTH SCIENCE

Participants who complete the entire study will be reimbursed $40 for their time and out-of-pocket expenses. Your involvement in the study is not linked to your individual answers or your interest in quitting or starting smoking—if you complete the study you will be reimbursed for your time.

It is important that you understand that your involvement in this study is voluntary. While we would be pleased to have you participate, we respect your right to decline. There will be no consequences to you if you decide not to participate. If you decide to discontinue participation at any time, you may do so without providing an explanation. All information will be treated in a confidential manner, and your name will not be used in any publication arising out of the research. All of the research data will be kept on a password-protected computer. Hard copy data will be kept for at least five (5) years from the date of the first publication of the study results. Electronic data will be securely stored until it is no longer necessary.

4. Are there any possible benefits from participation in this study?

No. However, the information we gather may help preventing the onset of smoking in adolescents and motivating smokers to quit smoking in the future.

5. Are there any possible risks from participation in this study?

There are no specific risks anticipated with participation in this study aside from those associated with continued smoking if you are a current smoker. If, over the course of the study, you do decide that you would like to quit smoking, we would be happy to provide you with quitting materials and to refer you to the local quit line.

6. What if I have questions about this research?

If you would like to discuss any aspect of this study please feel free to contact Dr. Natalie Schüz on (03) 6226 1093. Dr. Schüz would be happy to discuss any aspect of the research with you. When the study has been finalised the main outcomes will be published on the University of Tasmania's website.

This study has been approved by the Tasmanian Health and Medical Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. You will need to quote **[H0013138].**

Thank you for taking the time to consider this study.

If you wish to take part in it, please sign the attached consent form.

This information sheet is for you to keep.

Appendix D – Participant Consent Form

Medical Science 1, Level 4, 17 Liverpool Street,
Hobart, Tasmania 7000 Australia
Phone: (03) 6226 1093 Fax: (03) 6226 2870
Email: smokingutas@gmail.com

UTAS

UNIVERSITY OF TASMANIA

CONSENT FORM

Title of Project: Momentary effects of repeated encounters with anti-smoking warnings.

1. I have read and understood the 'Information Sheet' for this project.

2. The nature and possible effects of the study have been explained to me.

3. I understand that the study involves 17 days of monitoring (explained below). While in the study, I will be asked to monitor my encounters with anti-smoking messages and smoking using a simple hand-held computer. I understand I will be asked to carry this device with me at all times during the study.

I understand that I will also be required to visit the University of Tasmania up to four (4) times for study visits: once to enrol (this current visit), and a further three (3) times over the course of the study. Aside from this enrolment visit (which will take up to 45 minutes), each future study visit will take approximately 15-20 minutes to complete. During each study visit I will also be required to provide a sample of my breath by exhaling into a special device.

Finally, I understand that if I complete the entire study I will receive $40 or three hours course credit as compensation for my time.

4. As a smoker, I understand that participation involves the risk(s) associated with continued smoking.

5. I understand that all research data will be securely stored on the University of Tasmania premises for at least five years, and will then be destroyed when no longer required.

6. Any questions that I have asked have been answered to my satisfaction.

7. I agree that research data gathered from me for the study may be published provided that I cannot be identified as a participant.

8. I understand that the researchers will maintain my identity confidential and that any information I supply to the researcher(s) will be used only for the purposes of the research.

9. I agree to participate in this investigation and understand that I may withdraw at any time without any effect, and if I so wish, may request that any data I have supplied to date be withdrawn from the research.

10. I understand that this research has been approved by the Tasmanian Health and Medical Human Research Ethics Committee [project number: H0013138].

Name of Participant:	
Signature:	Date:

Statement by Investigator

I have explained the project & the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.

The participant has received the Information Sheet where my details have been provided so participants have the opportunity to contact me prior to consenting to participate in this project.

Name of investigator

Signature of investigator Date

Appendix E – Baseline Questionnaire (BSL) for Smokers

EASE smokers V1

There are 27 questions in this survey

Admin

1 [ID]Subject ID *

Please write your answer here:

2 [Date]Date completed *

Please enter a date:

3 [Code]Entry code *

Please check the format of your answer.

Please write your answer here:

Demographics

4 [Age]What is your current age? *

Please check the format of your answer.

Please write your answer here:

[ ]
years

5 [gender]Gender: *

Please choose only one of the following:

- ○ Female
- ○ Male

6 [race]What is your ethnicity?

Please choose all that apply:

- ☐ Caucasian / European
- ☐ Aboriginal
- ☐ Torres Strait Islander
- ☐ Asian
- ☐ Other: [ ]

7 [edu]What is the highest level of education that you have completed?

Please choose only one of the following:

- ○ Year 10 or less
- ○ Year 12
- ○ Some University
- ○ Graduated University
- ○ Graduate Degree

8 [marriage]What is your current marital status?

Please choose only one of the following:

- ○ Married
- ○ Widowed
- ○ Divorced
- ○ Separated
- ○ Never married
- ○ Living with partner

9 [partnersmk]Partner's smoking behaviour: *

Please choose only one of the following:

- ○ No partner
- ○ Partner has never smoked
- ○ Partner is a smoker
- ○ Partner is quitting smoking
- ○ Partner is an ex-smoker

Smoking History

10 [firstcig]How old were you when you smoked your FIRST EVER cigarette? *

Please write your answer here:

[ ]
years

11 [smkevery]Do you currently smoke cigarettes: *

Please choose only one of the following:

- ○ Everyday
- ○ Somedays

12 [cpd]On the days that you smoke, on average, how many cigarettes do you smoke per day? [Please use whole numbers - not a range.] *

Please write your answer here:

[ ]

13 [daysmth]On average, how many DAYS per month do you smoke? [A month has 30 days.] *

Please check the format of your answer.

Please write your answer here:

[ ]
days per month

14 [longsmk]For about how long have you smoked this amount? *

Please write your answer(s) here:

Years [ ]
Months [ ]

15 [ttfc]How soon after waking up do you smoke your first cigarette? *

Please choose only one of the following:

- ○ Within 5 minutes
- ○ From 6 to 15 minutes
- ○ From 16 to 30 minutes
- ○ From 31 minutes to 1 hour
- ○ More than 1 hour

16 [FTND_diff]Do you find it difficult to refrain from smoking in the places where it is forbidden e.g., in church, at the library, in cinemas etc? *

Please choose only one of the following:

- ○ Yes
- ○ No

17 [FTND_giveup] Which cigarette would you hate most to give up? *

Please choose only one of the following:

- ○ The first cigarette in the morning
- ○ Any other

18 [FTND_freq]Do you smoke more frequently during the first hours after waking than during the rest of the day? *

Please choose only one of the following:

- ○ Yes
- ○ No

19 [FTND_ill]Do you smoke if you are so ill that you are in bed most of the day? *

Please choose only one of the following:

- ○ Yes
- ○ No

20 [quit_attempts]In your best guess, about how many times in your lifetime have you made a serious attempt to stop smoking? By serious attempt we mean that you decided that you would try to make sure that you never smoked another cigarette. *

Please write your answer here:

[ ]
times

21 [mincpd]What is the MINIMUM number of cigarettes that you have smoked on any day in the last two months? *

Please write your answer here:

[ ]
cigarettes

22 [maxcpd]What is the MAXIMUM number of cigarettes that you have smoked on any day in the last two months? *

Please write your answer here:

[ ]
cigarettes

23 [mispercept] Please indicate how much you agree with each of the statements below: *

Please choose the appropriate response for each item:

	1: Strongly disagree	2: Disagree	3: Neutral	4: Agree	5: Strongly agree
It is likely that the average cigarette smoker will develop lung cancer in the future	○	○	○	○	○
It is likely that I will develop lung cancer in the future	○	○	○	○	○
Every single cigarette I smoke causes a little bit of harm to my health	○	○	○	○	○
Exercise can undo most of the effects of smoking	○	○	○	○	○
Vitamins can undo most of the effects of smoking	○	○	○	○	○
Whether a person gets lung cancer depends on genes more than anything else	○	○	○	○	○

Thoughts about smoking

24 [cogn1]Please indicate how much you agree with each of the statements below: *

Please choose the appropriate response for each item:

	1: Strongly disagree	2: Disagree	3: Somewhat disagree	4: Somewhat agree	5: Agree	6: Strongly agree
I am confident that I will not smoke if I don't want to.	○	○	○	○	○	○
I will try to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would put my financial security at risk.	○	○	○	○	○	○
The chances of me developing a smoking related disease because of smoking are high.	○	○	○	○	○	○
Not smoking is under my control.	○	○	○	○	○	○
I plan to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would affect important relationships in my life.	○	○	○	○	○	○
The chances of me dying young because of smoking are high.	○	○	○	○	○	○
It is difficult for me not to smoke.	○	○	○	○	○	○
I intend to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would stop me living my life the way I want to.	○	○	○	○	○	○
The chances of me becoming disabled (unable to walk long distances) because of smoking are high.	○	○	○	○	○	○
Not smoking is something I can do.	○	○	○	○	○	○

25 [cogn2]The thought of me developing a smoking related disease makes me feel: *

Please choose the appropriate response for each item:

	1	2	3	4	5	6	
not at all anxious	○	○	○	○	○	○	anxious
not at all afraid	○	○	○	○	○	○	afraid
not at all scared	○	○	○	○	○	○	scared
not at all worried	○	○	○	○	○	○	worried

Income

26 [income]Finally, what is your total annual household income before taxes? *

Please choose only one of the following:

- ○ Less than $20,000
- ○ $20,000 to $29,999
- ○ $30,000 to $44,999
- ○ $45,000 to $59,999
- ○ $60,000 to $74,999
- ○ $75,000+
- ○ Prefer not to answer

TLFB

27 [tlfb2]Thinking back over the last two (2) weeks, how many cigarettes did you smoke each day?

It is important that for each day listed, there is a number indicating the number of cigarettes you smoked that day.

On the days that you did not smoke mark those days with a zero (0).

In filling out the calendar we would like you to be as accurate as possible. If you cannot remember, give it your best guess.

It may help to think about other things that happened on each day -- sometimes this helps people to remember. *

Please write your answer(s) here:

Yesterday	
2 days ago	
3 days	
4 days	
5 days	
6 days	
1 WEEK ago	
8 days	
9 days	
10 days	
11 days	
12 days	
13 days	
2 WEEKS ago	

Appendix F – Baseline Questionnaire (BSL) for Never-smokers

EASE non-smokers V1

There are 29 questions in this survey

Admin

1 [ID]Subject ID *

Please write your answer here:

2 [Date]Date completed *

Please enter a date:

3 [Code]Entry code *

Please check the format of your answer.

Please write your answer here:

Demographics

4 [Age]What is your current age? *

Please check the format of your answer.

Please write your answer here:

[ ]
years

5 [gender]Gender: *

Please choose only one of the following:

- ○ Female
- ○ Male

6 [race]What is your ethnicity?

Please choose all that apply:

- ☐ Caucasian / European
- ☐ Aboriginal
- ☐ Torres Strait Islander
- ☐ Asian
- ☐ Other: [ ]

7 [edu]What is the highest level of education that you have completed?

Please choose only one of the following:

- ○ Year 10 or less
- ○ Year 12
- ○ Some University
- ○ Graduated University
- ○ Graduate Degree

8 [marriage]What is your current marital status?

Please choose only one of the following:

- ○ Married
- ○ Widowed
- ○ Divorced
- ○ Separated
- ○ Never married
- ○ Living with partner

9 [partnersmk]Partner's smoking behaviour: *

Please choose only one of the following:

- ○ No partner
- ○ Partner has never smoked
- ○ Partner is a smoker
- ○ Partner is quitting smoking
- ○ Partner is an ex-smoker

Smoking History

10 [eversmk]Have you ever smoked a cigarette? *

Please choose only one of the following:

- ○ Yes
- ○ No

11 [firstcig]How old were you when you smoked your FIRST EVER cigarette? *

Only answer this question if the following conditions are met:
Answer was 'Yes' at question '10 [eversmk]' (Have you ever smoked a cigarette?)

Please write your answer here:

[ ]
years

12 [smkevery]Do you currently smoke cigarettes: *

Please choose only one of the following:

- ○ not at all
- ○ some days
- ○ every day

13 [cpd]On the days that you smoke, on average, how many cigarettes do you smoke per day? [Please use whole numbers - not a range.] *

Only answer this question if the following conditions are met:
Answer was greater than or equal to 'some days' at question '12 [smkevery]' (Do you currently smoke cigarettes:)

Please write your answer here:

[ ]

24 [mispercept] Please indicate how much you agree with each of the statements below: *

Please choose the appropriate response for each item:

	1: Strongly disagree	2: Disagree	3: Neutral	4: Agree	5: Strongly agree
It is likely that the average cigarette smoker will develop lung cancer in the future	○	○	○	○	○
It is likely that I will develop lung cancer in the future	○	○	○	○	○
Every single cigarette someone smokes causes a little bit of harm to their health	○	○	○	○	○
Exercise can undo most of the effects of smoking	○	○	○	○	○
Vitamins can undo most of the effects of smoking	○	○	○	○	○
Whether a person gets lung cancer depends on genes more than anything else	○	○	○	○	○

Thoughts about smoking

25 [cogn1]Please indicate how much you agree with each of the statements below: *

Please choose the appropriate response for each item:

	1: Strongly disagree	2: Disagree	3: Somewhat disagree	4: Somewhat agree	5: Agree	6: Strongly agree
I am confident that I will not smoke if I don't want to.	○	○	○	○	○	○
I will try to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would put my financial security at risk.	○	○	○	○	○	○
The chances of me developing a smoking related disease because of smoking are high.	○	○	○	○	○	○
Not smoking is under my control.	○	○	○	○	○	○
I plan to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would affect important relationships in my life.	○	○	○	○	○	○
The chances of me dying young because of smoking are high.	○	○	○	○	○	○
It is difficult for me not to smoke.	○	○	○	○	○	○
I intend to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would stop me living my life the way I want to.	○	○	○	○	○	○
The chances of me becoming disabled (unable to walk long distances) because of smoking are high.	○	○	○	○	○	○
Not smoking is something I can do.	○	○	○	○	○	○

26 [cogn2]The thought of me developing a smoking related disease (e.g., because of passive smoking) makes me feel: *

Please choose the appropriate response for each item:

	1	2	3	4	5	6	
not at all anxious	○	○	○	○	○	○	anxious
not at all afraid	○	○	○	○	○	○	afraid
not at all scared	○	○	○	○	○	○	scared
not at all worried	○	○	○	○	○	○	worried

Income

27 [income]Finally, what is your total annual household income before taxes? *

Please choose only one of the following:

- ○ Less than $20,000
- ○ $20,000 to $29,999
- ○ $30,000 to $44,999
- ○ $45,000 to $59,999
- ○ $60,000 to $74,999
- ○ $75,000+
- ○ Prefer not to answer

TLFB

28 [tlfb1]Did you smoke any cigarettes in the last two weeks? *

Please choose only one of the following:

- ○ Yes
- ○ No

Submit your survey.
Thank you for completing this survey.

Appendix G – Follow-up Visit (FU1-FU3) Questionnaire for Smokers

EASE smokers V2-V4

There are 8 questions in this survey

Admin

1 [ID]Subject ID *

Please write your answer here:

2 [Date]Date completed *

Please enter a date:

3 [Code]Entry code *

Please check the format of your answer.

Please write your answer here:

Thoughts about smoking

4 [cogn1]Please indicate how much you agree with each of the statements below: *

Please choose the appropriate response for each item:

	1: Strongly disagree	2: Disagree	3: Somewhat disagree	4: Somewhat agree	5: Agree	6: Strongly agree
I am confident that I will not smoke if I don't want to.	○	○	○	○	○	○
I will try to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would put my financial security at risk.	○	○	○	○	○	○
The chances of me developing a smoking related disease because of smoking are high.	○	○	○	○	○	○
Not smoking is under my control.	○	○	○	○	○	○
I plan to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would affect important relationships in my life.	○	○	○	○	○	○
The chances of me dying young because of smoking are high.	○	○	○	○	○	○
It is difficult for me not to smoke.	○	○	○	○	○	○
I intend to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would stop me living my life the way I want to.	○	○	○	○	○	○
The chances of me becoming disabled (unable to walk long distances) because of smoking are high.	○	○	○	○	○	○
Not smoking is something I can do.	○	○	○	○	○	○

5 [cogn2]The thought of me developing a smoking related disease makes me feel: *

Please choose the appropriate response for each item:

	1	2	3	4	5	6	
not at all anxious	○	○	○	○	○	○	anxious
not at all afraid	○	○	○	○	○	○	afraid
not at all scared	○	○	○	○	○	○	scared
not at all worried	○	○	○	○	○	○	worried

TLFB

6 [tlfb1]Since you last answered these questions, did you quit smoking? *

Please choose only one of the following:

- ○ Yes
- ○ No

7 [lapse]Did you experience a lapse since you quit smoking? *

Only answer this question if the following conditions are met:
Answer was 'Yes' at question '6 [tlfb1]' (Since you last answered these questions, did you quit smoking?)

Please choose only one of the following:

- ○ Yes
- ○ No

8 [tlfb2]Thinking back over the last two (2) weeks, how many cigarettes did you smoke each day?

It is important that for each day listed, there is a number indicating the number of cigarettes you smoked that day.

On the days that you did not smoke mark those days with a zero (0).

In filling out the calendar we would like you to be as accurate as possible. If you cannot remember, give it your best guess.

It may help to think about other things that happened on each day -- sometimes this helps people to remember. *

Please write your answer(s) here:

Yesterday	
2 days ago	
3 days	
4 days	
5 days	
6 days	
1 WEEK ago	
8 days	
9 days	
10 days	
11 days	
12 days	
13 days	
2 WEEKS ago	

Submit your survey.
Thank you for completing this survey.

Appendix H – Follow-up Visit (FU1-FU3) Questionnaire for Never-Smokers

EASE non-smokers V2-V4

There are 7 questions in this survey

Admin

1 [ID]Subject ID *

Please write your answer here:

2 [Date]Date completed *

Please enter a date:

3 [Code]Entry code *

Please check the format of your answer.

Please write your answer here:

Thoughts about smoking

4 [cogn1]Please indicate how much you agree with each of the statements below: *

Please choose the appropriate response for each item:

	1: Strongly disagree	2: Disagree	3: Somewhat disagree	4: Somewhat agree	5: Agree	6: Strongly agree
I am confident that I will not smoke if I don't want to.	○	○	○	○	○	○
I will try to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would put my financial security at risk.	○	○	○	○	○	○
The chances of me developing a smoking related disease because of smoking are high.	○	○	○	○	○	○
Not smoking is under my control.	○	○	○	○	○	○
I plan to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would affect important relationships in my life.	○	○	○	○	○	○
The chances of me dying young because of smoking are high.	○	○	○	○	○	○
It is difficult for me not to smoke.	○	○	○	○	○	○
I intend to not smoke in the future.	○	○	○	○	○	○
Developing a smoking related disease would stop me living my life the way I want to.	○	○	○	○	○	○
The chances of me becoming disabled (unable to walk long distances) because of smoking are high.	○	○	○	○	○	○
Not smoking is something I can do.	○	○	○	○	○	○

5 [cogn2]The thought of me developing a smoking related disease (e.g., because of passive smoking) makes me feel: *

Please choose the appropriate response for each item:

	1	2	3	4	5	6	
not at all anxious	○	○	○	○	○	○	anxious
not at all afraid	○	○	○	○	○	○	afraid
not at all scared	○	○	○	○	○	○	scared
not at all worried	○	○	○	○	○	○	worried

TLFB

6 [tlfb1]Since your last visit, did you smoke any cigarettes? *

Please choose only one of the following:

- ○ Yes
- ○ No

7 [tlfb2]Thinking back over the last two (2) weeks, how many cigarettes did you smoke each day?

It is important that for each day listed, there is a number indicating the number of cigarettes you smoked that day.

On the days that you did not smoke mark those days with a zero (0).

In filling out the calendar we would like you to be as accurate as possible. If you cannot remember, give it your best guess.

It may help to think about other things that happened on each day -- sometimes this helps people to remember. *

Only answer this question if the following conditions are met:
Answer was 'Yes' at question '6 [tlfb1]' (Since your last visit, did you smoke any cigarettes?)

Please write your answer(s) here:

Yesterday	
2 days ago	
3 days	
4 days	
5 days	
6 days	
1 WEEK ago	
8 days	
9 days	
10 days	
11 days	
12 days	
13 days	
2 WEEKS ago	

Submit your survey.
Thank you for completing this survey.